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Ward nurses' experiences of caring for adult patients with early signs of clinical deterioration: a qualitative study

Doświadczenia pielęgniarek pracujących na oddziale szpitalnym w opiece nad dorosłymi pacjentami z wczesnymi objawami pogorszenia stanu klinicznego: badanie jakościowe

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STRESZCZENIE

DOŚWIADCZENIA PIELĘGNIAREK PRACUJĄCYCH NA ODDZIALE SZPITALNYM W OPIECE NAD DOROSŁYMI PACJENTAMI Z WCZESNYMI OBJAWAMI POGORSZENIA STANU KLINICZNEGO: BADANIE JAKOŚCIOWE

Cel pracy. Celem badania było przedstawienie doświadczeń pielęgniarek pracujących na oddziale szpitalnym sprawujących opiekę nad dorosłymi pacjentami wykazującymi wczesne objawy pogorszenia stanu klinicznego. Pomimo postępów w opiece, pielęgniarki nadal napotykają trudności związane z szybkim rozpoznawaniem objawów oraz adekwatną reakcją, co prowadzi do niepotrzebnych opóźnień w leczeniu.

Materiał i metody. Zastosowano jakościową metodę analizy treści. Dane zebrano podczas internetowej dyskusji grupy fokusowej, przeprowadzonej w listopadzie 2023 roku. W spotkaniu uczestniczyło dziesięć pielęgniarek pracujących na oddziale szpitalnym posiadających doświadczenie w opiece nad pacjentami dorosłymi z wczesnymi oznakami pogarszającego się stanu zdrowia. Badanie przeprowadzono zgodnie ze skonsolidowanymi kryteriami raportowania badań jakościowych (COREQ).

Wyniki. W wyniku analizy wyodrębniono główną kategorię: „Radzenie sobie z wyzwaniami związanymi z opieką nad dorosłymi pacjentami z wczesnymi objawami pogorszenia stanu klinicznego", którą podzielono na dwie podkategorie: „Ocena wczesnych objawów pogorszenia stanu klinicznego" oraz „Reakcja na wczesne objawy pogorszenia stanu klinicznego".

Wnioski. Pielęgniarki pracujące w szpitalu dostrzegały subtelne, nietypowe zmiany w psychospołecznym i fizycznym funkcjonowaniu pacjentów we wczesnym stadium pogorszenia. Wskazano, że negatywne postawy i zachowania innych pracowników medycznych mogą wpływać na opóźnienie reakcji klinicznej. W związku z tym istnieje potrzeba przeciwdziałania tym niekorzystnym zachowaniom oraz opracowania skutecznego narzędzia przesiewowego, umożliwiającego wczesne i trafne rozpoznanie oznak pogarszającego się stanu pacjenta na oddziale.

Słowa kluczowe: oddział ogólny, pogorszenie stanu klinicznego, zespół szybkiego reagowania, punktacja wczesnego ostrzegania, intensywna terapia

ABSTRACT

WARD NURSES' EXPERIENCES OF CARING FOR ADULT PATIENTS WITH EARLY SIGNS OF CLINICAL DETERIORATION: A QUALITATIVE STUDY

Aim. Despite advancements in care,ward nurses still experience challenges in early detection and response, facing unnecessary delays in patient treatments. The aim of the study was to describe ward nurses' experiences caring for adult patients with early signs of clinical deterioration.

Material and methods. A qualitative content analysis approach was used. Data collection was completed through an online focus group discussion in November 2023. The meeting was attended by ten ward nurses with experience in caring for adult patients with early signs of clinical deterioration. This study complied with the Consolidated Criteria for Reporting Qualitative Research (COREQ).

Results. The analysis identified one main category:"Dealing with the challenges of care for adult patients with early signs of clinical deterioration", which was divided into two subcategories "Early signs of deterioration assessment", and "Response to early signs of deterioration".

Conclusions. Ward nurses perceived that unusual changes in patient's psychosocial and physical functioning were observed at the early phase of patient deterioration. It has been observed that the negative behaviors of other clinicians affect the promptness of clinical response.Consequently, there is a need to improve the clinicians' negative behaviors and develop an effective early warning screening tool that accurately capture early signs of patient deterioration in the ward.

Key words: general ward, clinical deteriorations, rapid response team, early warning scores, intensive care

INTRODUCTION

Clinical deterioration can be defined as an evolving, predictable, and symptomatic process of physiological worsening leading to a critical illness [1]. The National Confidential Enquiry into Patient Outcome & Death emphasizes that failure to identify and address early clinical deterioration and acute illnesses in hospitalized patients represents a global safety concern [2]. Poor patient outcomes, in terms of morbidity and mortality, are expected consequences of a delayed response to early signs of clinical deterioration. A concerning report showed an increased rate of preventable deaths to 26%, which was related to a delayed response to signs of clinical deterioration [3].

Patient deterioration varies between intensive care units (ICUs) and general wards. Patients admitted to the ICUs are often in life-threatening conditions and require immediate and constant monitoring. The staff-to-patient ratio in the ICU is typically higher, which ensures that each patient receives individualized attention [4]. In contrast, general wards are for patients recovering from surgeries, who are undergoing treatment for non-life-threatening illnesses, or who are receiving general health services. Staff members care for multiple patients simultaneously, as the required monitoring level is less intensive [4]. In this context, the deterioration of health in the intensive care unit is that patients are already in a precarious state or are seriously deteriorating upon admission, whereas patients in the ward are not in a similar condition. When the state of patients in a general ward start to deteriorate, early detection and response are crucial to prevent severe deterioration and admission to ICUs [8,10]. General wards usually have resources to screen and respond to patient deterioration, such as an early warning system (EWS) and rapid response team (RRT) [10]. EWS uses a risk stratification tool that identifies patients at risk of severe deterioration [5] while the RRT is a team of providers that responds to RRT activation to immediately assess and treat the patient to prevent intensive care unit transfer, cardiac arrest, or death [6].

Despite adequate resources in the ward, deficiencies in clinicians' ability to identify signs of clinical deterioration have been reported [7]. Clinicians regularly fail to communicate test results in a timely and actionable manner, and adequately document observed changes [7]. Preventable consequences, such as admissions to intensive care units or cardiac arrests, occur as a result of ineffective recognition and late responses [8,9]. These findings imply that positive patient outcomes depend on early detection of clinical deterioration and promptness to implement corrective measures. It allows for rapidintervention , reduces unplanned intensive care unit admissions, reduces length of hospital stays and costs, and improves survival rates [9,10].

There are no studies on the experiences of ward nurses on early signs of patient deterioration . Most studies focus instead on ward nurses' experiences with deteriorating patients, which provide unclear data on what happens prior to obvious signs of deterioration [11,12,13,14]. For instance, an integrative review found that the recognition and management of the deteriorating patient is complex and multidimensional, as the study could not classify the significant signs that occur before to obvious signs of deterioration so that early and better management could be provided [12].

Although several studies have examined the impact of late response on patients' outcomes, only a few have focused on causes of clinicians failure, particularly nurses working in adult wards, to promptly detect and respond to early signs of clinical deterioration. Therefore, a qualitative study design was needed to examine nurses' perspectives on this phenomenon. Learning about the experiences of ward nurses may provide insights into what they commonly face, from the detection and clinical response to consequent patient outcomes.

AIM

The aim of the study was to describe the experiences of ward nurses in caring for adult patients with early signs of clinical deterioration.

MATERIALS AND METHODS

Design

A qualitative content analysis was used to to obtain an objective and systematic description of participants' experiences in caring for adult patients with early signs of clinical deterioration [15].The data were collected through an online Focus Group Discussion (FGD). This method was beneficial in ensuring the full and equitable participation of individuals who may otherwise experience barriers in face-to-face participation [16]. The Consolidated Criteria for Reporting Qualitative Research (COREQ) ensured reporting quality[17].

Sample

The inclusion criteria for the study were to be a ward nurse with at least one year of experience working in a care ward caring for the adult patients and and experience in caring for patients with signs of clinical deterioration in the last three months. There were no exclusion criteria. A purposive sampling method was used to recruit participants. An email was sent to all eligible ward nurses, and a note was posted on the unit nursing stations with relevant information about the study. Potential participants provided their contact details to their head nurses, who forwarded a list of 18 participants to the author. However, eight potential participants were excluded because they did not meet the inclusion criteria. Therefore, 10 eligible participants were invited to participate in the scheduled focus group discussion. Informed written consent was obtained from all of the participants. Although data saturation was not achieved during the study, a sample size of 10 nurses provided the needed variability in described experiences for the care of adult patients with early signs of clinical deterioration. By including male and female nurses of different ages and years of experience, the findings may be transferred to similar settings. The participants were from different wards with different types of patient populations, which increased transferability of the research results.

Data Collection

The study was conducted in a tertiary care center in Riyadh, Saudi Arabia, with 1,500 beds. In this hospital, fluctuations in patients' vital signs and physical assessment changes are the main criteria used by ward nurses to detect clinical deterioration.

At the beginning of the Focus Group Discussion (FGD), participants were given general instructions such as online FGD etiquette rules and information related to the interview recording. All 10 recruited participants were present. The author, who acted as the moderator, began the FGD with a comprehensive introduction of the studied topic to ensure a uniform understanding. The basic rules of the discussion were explained, and participants were asked to introduce themselves (names, clinical background) to establish rapport and create a safe space for discussion. An assigned observer took brief notes about each participant's comments in response to semi-structured or open-ended questions from the moderator. The interview included these questions/prompts: (a) ‚Please recall your clinical experiences in the hospital, especially in the treatment of deteriorating adult patients.' (b) , What were your experiences about caring for adult patients in their early signs of clinical deterioration?' (c) ‚What were the specific details of the cases you experienced?' (d) ‚How effective were the interventions in these cases? The questions were asked one at a time and discussed by each of the participants. All of the them answered, and some participants also responded to other participants' answers. At the end of the discussion, the moderator concluded: „Is there anything else you would like to add?". The interview took place in November 2023 and lasted two hours.

The FGD was moderated by the author, who holds a Master degree, has limited experience in leading qualitative studies, and working as a Nursing Quality Analyst in the hospital where the study took place. During the interview, a colleague with experience in moderating FGD acted as an observer, and another was assigned to recording.

Analysis

A qualitative content analysis was done based on the work of Granaheim and Lundman to analyze the verbatim transcripts of the discussion. The analysis process consisted of the following steps:

1. The author transcribed the recorded interview verbatim and read it repeatedly to ensure understanding of the whole.
2. The verbatim text was divided into meaning units.
3. The sizes of these meaning units were then reduced without compromising of the content's quality. This work resulted in condensed meaning units. A copy of the transcript and condensed meaning units were shared with an expert qualitative researcher for review and validation.
4. After validation, condensed meaning units were abstracted and labeled with codes. Through an iterative process, significant broader patterns of words and phrases were highlighted and coded. The author and the qualitative research expert independently performed the coding process.
5. After independent establishment of the subcategories, critical comparisons of the subcategories and thorough discussions took place to reach consensus on one identified main category [15].

The qualitative research expert who participated in the analysis is a PhD holder and educator specializing in qualitative research.

Reliability

Granaheim and Lundman describe various aspects of reliability in qualitative research, such as credibility, dependability, and transferability concepts [15]. In the present study, the author ensured the reliability of the findings by seeking the agreement of other experts, by membersverification , and by clear presentation of the applied method. The author sought the agreement of the qualitative researcher expert to determine if the selected meaning units were the most suitable and if the emerging categories covered the codes appropriately. Verification through team members was done by providing each participant with the transcript of their coded interview and asking them whether the codes matched their shared experiences.

The Institutional Review Board approved this study on November 21, 2023 (Reference #2231411). Wrritten informed consent was obtained from all participants. Participants were anonymized by giving them a number instead of their names, ensuring their quotes were also pseudonymized. The list for the pseudonymization was kept separate from the transcribed material.

RESULTS

Sociodemographic data

Ten participants completed the interview. Females accounted for 70% (n=7). The mean age of the studied population was 29.5 years. All participants had a bachelor's degree in nursing and a mean work experience of 5.3 years (Tab. 1).

Tab. 1. The table shows description of participants

Participant Number	Age	Gender	Highest Educational Attainment	Years of Nursing Experience	Department
1	35	Female	Bachelors	14	Adult Med/Surg
2	26	Male	Bachelors	3	Adult Med/Surg
3	36	Female	Bachelors	9	Adult Surgical
4	28	Female	Bachelors	5	Adult Surgical
5	24	Female	Bachelors	1	Adult Medical
6	26	Male	Bachelors	2	Adult Bone Marrow Transplant
7	31	Male	Bachelors	7	Adult Bone Marrow Transplant
8	34	Female	Bachelors	4	Antepartum/ Postpartum
9	29	Female	Bachelors	5	Antepartum/ Postpartum
10	26	Female	Bachelors	3	Adult Medical

The analysis of verbatim statements allowed for the identification of different codes, which were grouped into subcategories. This led to the emergence of a main category: *Dealing with challenges of care when caring for adult patients with early signs of clinical deterioration*. The analysis also allowed for the identification of two subcategories: Assessment of *early signs of deterioration assessment and Response to early signs of deterioration* (Tab. 2).

Tab. 2. The table of summary of category and subcategories

Codes	Subcategory	Category
• New onset of respiratory problems • Abnormal vital signs • Decreasing activities of daily living • Sudden fatigue • Restlessness • Irritability • Loss of interest • Withdrawn	Early signs of deterioration assessment	Dealing with the challenges of care when caring for adult patients with early signs of clinical deterioration
• Prioritization • Application of critical knowledge and skills • Rapid Response Team activation • Unavailable attending physician • RRT negative behaviors	Response to early signs of deterioration	

First Subcategory: Early signs of deterioration assessment

Ward nurses follow the nursing assessment policy for assessing and monitoring patient's vital signs. Physical assessment is performed upon admission, at the beginning of the work shift (12-hour work shift), and as needed. Vital signs monitoring is performed at the beginning of the work shift, every four hours, and as needed (according to specific situations like monitoring during a procedure or blood transfusion). Participants in the study commonly reported that their initial suspicion of signs of patient deterioration occurred when there was observed an abnormal change in vital signs. These apparent physiological alterations were seen as clinical deterioration.

„*I had this experience before when I did my morning rounds with one of my patients. As I checked the vital signs, I foundthe increase in temperature . Then, , I noticed the patient was already tachycardic and hypotensive. These changes in vitals were new. The Four hours earlier, the patient's vital signs were within the normal range.*" -Participant 1

However, physiological changes did not only refer to abnormal vital signs; participants also reported that their observations of the patient's stamina were included in their assessment of clinical deterioration. The patient's stamina refers to the patients ability to perform their daily living activities. These changes appear before apparent signs of deterioration.

„*In my experience, I usually notice that prior to the patient's serious deterioration, there was an obvious change in the patient's ability to perform daily activities like toilet use, mobility, and even prayers,as he easily gets tired. There was an obvious decrease in his ability to perform his activities of daily living*"-Participant 10

Apart from physiological changes and decreased daily life functioning, unexpected psychosocial changes were identified as early signs of clinical deterioration. Participants of the study commonly reported that changes in the patient's psychosocial condition occurred one day before a more obvious sign of deterioration.

„*We had this long-term patient in our ward, and I remember she had this unusual change in her behavior on the day before she started to manifest abnormalities in her vital signs, such as sudden loss of interest in everything and refusal to cooperate with the plan of care. She also suddenly became withdrawn. She did not want to talk toanyone , which was very unusual of her. A day later, her vital signs changed, she started to become hypotensive and tachycardic, and her skin color changed to being pale. The patient deterioration happened so fast.*" – Participant 7

Second Subcategory: Response to early signs of deterioration

Participants indicated that early interventions would improve patient prognosis and other clinical outcomes.

"*For me, early detection and early nursing and medical response would prevent the patient from deteriorating further.*" -Participant 9

„*Proper assessment, good critical thinking, and immediate nursing and medical interventions can save patients from serious morbidity and mortality.*" -Participant 1

Participants reported that severe morbidity could have been prevented if interventions had been rendered more promptly. Multiple factors were reported as contributing to the delay in medical interventions. These included the Rapid Response Team's (RRT) resistance to interven tion and the primary physician's unavailability to intervene once the nurse reported signs of deterioration.

"*Sometimes, I encountered difficulty with the RRT team because they would question my escalation and would respond very late.*"- Participant 8

„*I would say that the delayed response of the RRT team and even with the unavailability of the primary physician contributed to the very poor prognosis of my patients.*" -Participant 10

DISCUSSION

This study aimed to describe ward nurses' experiences in caring for adult patients with early signs of clinical deterioration. One main category emerged: "*Dealing with the challenges of care when caring for adult patients with early signs of clinical deterioration.*" The Participants described challenges associated with the assessment and response to early signs of patient deterioration.

Findings in this study revealed that vital signs were the most commonly used indicators for ward nurses to detect signs of deterioration. All participants agreed that hospital policies mandate them to use abnormal vital signs as grounds for escalation or rapid response activation. Several studies have found that deviations in vital signs are

good predictors of impending deterioration, which explains hospitals reliance on early warning screening tools [18,19,20]. These tools, which primarily measured the cumulative variation in clinical observations (e.g. changes in vital signs) are reliable in detecting impending serious deterioration. However, participants described that identifying early signs of deterioration was still a challenge . They commonly agreed that a deviation in vital signs is not always the only sign of early clinical deterioration. They identified other signs such as patient's psychosocial state and functioning in daily life that are possibly present even before the deviation in the vital signs. Therefore, my finding contrasts with the claim that vital signs abnormalities are the crucial parameters to detect early clinical deterioration [21].

Participants in the study perceived that unexpected manifestations of psychosocial changes such as withdrawal, loss of interest, anxiety, and irritability could also be a redflag of early phase of clinical deterioration. They reported that psychosocial changes tended to start one day before the deviation of vital signs or other severe abnormal physiological manifestations. This finding differs from a previous study [22], in which the onset of psychosocial changes was undetermined. Therefore, the finding suggests that psychosocial changes may be an early indication of clinical deterioration, as it appeared prior to severe physiologic manifestations. Another finding was that ward nurses perceived activity intolerance (e.g., fatigue, decreased functioning in daily living activities) as an early sign of deterioration. Similar to the emergence of psychosocial changes, a sudden decrease in the patient's functioning was reported to appear before vital signs deviation or other severe abnormal physiological manifestations. This represents a new finding, as vital signs parameters tend to be the main focus of monitoring for clinical deterioration, with physiologic parameters other than vital signs abnormalities [23,24,25]. These changes in psychosocial and decreased functioning are not captured by the early warning screening tool in use at the hospital. Often, deterioration is only recognized when there is already significant or severe clinical deterioration. Ward nurses indicated that early detection and clinician's response to signs of deterioration were vital in improving patient outcomes. It suggests that prompt interventions decrease the likelihood of severe morbidity or mortality. This finding is consistent with previous studies [8,26] which showed evidence of significant improvement in patient outcomes after patients received immediate and rapid interventions from the time of detection. However, these studies were unable to show the onset of deterioration,as earlier detection of deterioration could have led to better improvement. Therefore, the current findings suggest the inclusion of psychosocial and patient functioning in monitoring for early detection and response to achieve better patient outcomes.

This study also identified barriers in the escalation process when symptoms were detected by ward nurses that resulted in delayed medical interventions., Examples of such barriers were the RRT resistance in escalating the clinical situation and poor rapid availability of the primary physician once the situationwas reported . Participants commonly reported the inappropriate behaviors of the RRT team. Despite relying on the hospital criteria to activate the code, the RRT team often expressed doubts against the nurses regarding the validity of their activation. The RRT team's resistance has even led to disputes prolonging the escalation process, often resulting ina loss of trust . This distrust often undermined nurses' confidence, resulting in hesitancy to activate RRT in the future. These findings are consistent with previous studies referring to RRT behaviors were identified as one of the factors of delayed interventions due to condescending or difficult behavior of RRT teams whenever bedside nurses escalate patient deterioration [27,28]. Apart from RRT resistance, it was also found that the primary physician's unavailability at the initial escalation was another factor for delayed medical interventions. Nurses were sometimes faced with difficulties when reporting minor physiological changes in patients to prevent further deterioration. They reported that physicians would not immediately answer phone calls. Participants in the study felt that this delay in addressing minor physiological changes led to preventable deterioration in patients. A study by Manojlovich et al. found that poor communication and interpersonal relationships between nurses and physicians were factors, which delayed physician's response to phone calls, and misunderstandings, which often led patients to preventable severe consequences [29]. Participants commonly agreed that the RRT system in the hospital is effective only when this team strictly adheres to the rules of system. A prompt response should be expected whenever there is an activation. The RRT systems are beneficial, provided that they are fully adhered to by all clinicians, which is consistent with the findings of this study [6,30], It was stated that recent evidence of RRT's effectiveness at night shift was less convincing due to clinicians' non-adherence to the RRT system because of inadequate resources and challenges of night shift work . This confirms that when the system is not appropriately followed, it will become less beneficial.

This study has provided new insights into the currently insufficient early screening methods used by hospitals in detecting early signs of patient deterioration. The Modified Early Warning System (MEWS), a simple physiological evaluation system commonly used by ward nurses in Saudi Arabia and international countries, identifies patients at risk of serious deterioration but fails to capture earlier stages [10]. Although MEWS has shown evidence in reducing cardiac arrests and unplanned ICU admissions [9,10], it does not include a psychosocial and functioning assessment that effectively aids in detecting early signs of clinical deterioration for a better response. On the other hand, there is currently no existing psychosocial and functioning screening tool designed to identify early signs of patient deterioration. To that end, there is a need to adjust currently used early warning screening tools, such as the MEWS, to integrate psychosocial and functioning assessments. This could allow to accurately capture early signs of patient deterioration and provide effective and efficient interventions.

Moreover, this study provides new knowledge to hospital administrators and policymakers, stressing the need to ensure efficient escalation processes that address clinicians' negative behaviors. Moreover, to improve nurse-physician communication, leaders must create an open communication environment by modeling appropriate behavior, setting expectations, and investing in organizational support systems. Implementing strategies such as collaborative bedside rounding, inclusivity and teamwork, stress management, and structured communication tools will positively enhance nurse-physician communication. The unique feature of this study is that it provides a qualitative perspective of ward nurses. It can guide further cross-sectional surveys and cohorts of mixed-method studies to understand the various aspects of early signs

of patient deterioration in greater depth. It can also serve as a guide for effective early detection programs or policy building at the national level.

Study Limitation

A limitation includes potential bias as the participants were selected based on their claims that they experienced the studied phenomenon. The study findings have limited applicability beyond the Saudi Arabian context because the social context of the patients, nurses, and other clinicians varies dramatically among cultures. Also, the organizational culture and healthcare system outside Saudi Arabia may differ because of different regulations, protocols, policies, and systems. Additionally, this study was conducted only in a single tertiary hospital with 10 participants, which may be too small to draw solid conclusions, which, although it gives rich information about the phenomenon being studied, limits the generalizability.

CONCLUSIONS

When caring for deteriorating adult patients, a thorough assessment and immediate nursing and medical interventions are perceived essential to prevent severe complications and mortality. Unusual changes in the patient's psychosocial and functioning are perceived to be signs of early clinical deterioration. Future research is needed to develop the currently used early warning screening tools further, including psychosocial and functioning assessments, to capture early signs of patient deterioration in the ward accurately. The implementation of this tool will require organizational and educational interventions from the nursing leadership team to provide adequate resources and support so that potential challenges are efficiently addressed, such as an adjustment in the electronic health record system (EHR), improving staff's knowledge and understanding of the tool, workflow changes, and accurate utilization compliance. Hospital administrators shall collaborate with inter-professional team members to ensure its efficient application on the EHR and implement a policy imposing an improved workflow, mandating staff nurses to accurately utilize the tool in adult ward settings. Nursing educators shall impose educational campaigns to educate all staff nurses across all adult wards and ensure effective monitoring steps to ensure nurses' understanding and compliance. Moreover, extensive interventions designed to include rigorous policy evaluations and improvements are needed to address clinicians' negative behaviors.

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